

TECHNICAL PROGRAM

Monday January 6, 1997

Registration and Opening

08:50 - 11:00 REGISTRATION (Podium of Academic Building)

11:00 - 12:00 WELCOME AND OPENING (LT1)

Monday January 6, 1997

LT18 (13:30-17:10)

Session 6P18

Microstrip and Printed Antennas 1

Organizer: Kin-Lu Wong

Chairperson: Kin-Lu Wong, National Sun Yat-Sen Univ.

Co-Chairperson: Ching-Her Lee, National Changhua Univ.
of Education

13:30

Studies of Cylindrical Microstrip Antennas

Kin-Lu Wong, Nan-Cheng Chen
National Sun Yat-Sen University

13:50

Theory and Experiment of Spherical Microstrip Antennas

*Hong-Twu Chen, **Horng-Dean Chen, *Yuan-Tung Cheng
*Chinese Military Academy
**Nan-Tai College

14:10

Dual-Frequency Operation of Rectangular Microstrip Antennas

*Horng-Dean Chen, **Shang-Jen Chuang
*Nan-Tai College
**National Kaosiung Institute of Marine Technology

14:30

Modified Annular-Ring Microstrip Antennas with a Sectorial Cut

*Wen-Shyang Chen, **Jinn-Chyuan Yang
*Cheng-Shiu College of Technology & Commerce
**Chung Cheng Institute of Technology

14:50

Scattering from Conformal Microstrip Antennas

Yuan-Tung Cheng, Hong-Twu Chen, Tsurng-Jeng Chang
Chinese Military Academy

15:10 Break

15:30

Analysis of Cylindrical Microstrip Discontinuities

Ching-Her Lee, Wei-Chen Hsu
National Changhua University of Education

15:50

Coplanar Waveguides on a Cylindrical Surface

Hsin-Cheng Su, Kin-Lu Wong
National Sun Yat-Sen University

16:10

Some Results on Slot-Coupled Double-Sided Microstrip Lines

Jui-Han Lu, Kin-Lu Wong
National Sun Yat-Sen University

16:30

Printed Antennas for A Portable Handset

Shyh-Yeong Ke, Chewn-Pu Jou
Industrial Technol. Research Institute

16:50

Characteristics of a Rectangular Patch Antenna Using Foam as Substrate

Jeen-Sheen Row
RF-Link Inc.

LT17 (13:30-17:30)

Session 6P17

Electromagnetic Compatibility

Organizer: S W Leung

Chairperson: S W Leung, City Univ. of Hong Kong

Co-Chairperson: A C Marvin, University of York

13:30

An Overview of EMC Development in Hong Kong

S W Leung, Y M Siu, James W Minett, H S Liu
City University of Hong Kong

13:50

Theoretical Investigation on Changing Matching Frequency Characteristics with a Punched Ferrite EM-Absorber

Youji Kotsuka, Atsushi Maeda
Tokai University

14:10

Multipoint Connections of Wires to Surfaces in the Combination of GTD and MOM

*Holger Wagner, **Karl-Heinz Gonschorek
*TU Hamburg-Harburg, **TU Dresden

14:30

Time Domain Magnetic Field Measurement near Printed Circuit Boards

Hideki Sasaki, Takashi Harada
NEC Corporation

14:50

Screening of Electromagnetic Fields by an Ellipsoid Shaped Shield with Constant Wall Thickness

*E Baum, **G Mrozynski
*School of Engineering, Fulda, **University of Paderborn

15:10 Break

15:30

The Effects of Cross-Polarisation Terms in the Measurement of Radiated Emissions on Open-Area Test Sites and in GTEM Cells

A C Marvin, L Turnbull, A Nothofer
University of York

15:50

Solution for the EMC-Immunity Measuring Problem for Interactive and Non-Interactive Satellite Earth Stations

Uwe Kartmann
Bundesamt für Zulassungen in der Telekommunikation

16:10

EMC Re-design Technique

C N Wong, H W Ma
City University of Hong Kong

16:30

Progress Research in Microwave EMC

Sheng-chuan Zhu
Peking University

16:50

The Use of the Sequent Diffraction in EMC Problems

A S Batoroev, D B Dugarzhapova, V E Munkoev
Buryat Institute of Natural Sciences

17:10

Development of 0°/2 and 180°/2 Hybrid Junction in the Test System of EMC

Zhong Wang, Jihong Zhang, Jiasheng Zhao, Shunji Huang
University of Science and Technology of China

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LT16 (13:30-16:50)

Session 6P16

Computational Techniques 1

Organizer: The-Nan Chang

Chairperson: The-Nan Chang, Tatung Institute of Tech.

Co-Chairperson: Wei-Ching Chuang, National Yunlin
Polytech Institution

13:30

Simulation and Measurement of the Deflected Electron Beams in a Color Cathode-Ray Tube

*D M MacGregor, **C-W Su, **P-H Kuo, **J-J Wang, **C-H Yeh,
**C-F Huang
*Electrocon International, Inc.
**Chunghwa Picture Tubes, Ltd.

13:50

Analysis of Multislot Line by Charge-Field Integral Equation Method

The-Nan Chang
Tatung Institute of Technology

14:10

Novel Differential Approach for Scattering from a Laminated and Anisotropic Cylindrical Shell of Arbitrary Cross-section

Cheng-Nan Chiu, Chun Hsiung Chen
National Taiwan University

14:30

Analysis of the Four-Layer Optical Waveguides by Galerkin's Method

*Kun-Hua Tsai, *Wei-Yu Lee, *Kun-Yi Lee, **Wei-Ching Chuang
*Tatung Institute of Technology
**National Yunlin Polytech Institution

14:50

A Simple Mathematica Algorithm for Computation of Spheroidal Wave Functions and their Derivatives

L W Li, P S Kooi, T S Yeo, M S Leong, C L Quek
National University of Singapore

15:10 Break

15:30

Addition to Spectral Domain Technique to Analysis of Planar Transmission Lines

Yung-Hong Chen, The-Nan Chang
Tatung Institute of Technology

15:50

Analysis of EM Scattering from Microstrip Circular Patch Using Hybrid Method: A Closed Form Solution

L W Li, P S Kooi, T S Yeo, M S Leong, Y L Qiu
National University of Singapore

16:10

Capacitance Computation for CPW Discontinuities with Finite Metallization Thickness by Hybrid Finite Element Method

Chien-Wen Chiu, Ruey-Beei Wu
National Taiwan University

16:30

Design Considerations for Microstrip Antennas Excited by Coplanar Waveguides

Powen Hsu, Shih-Wen Lu
National Taiwan University

LT15 (13:30-16:50)

Session 6P15

Scattering and Diffraction 1

Organizer: Weng Cho Chew, Uni. of Illinois at Urbana-Champaign

Chairperson: Jian-Ming Jin, Univ. of Illinois at Urbana-Champaign

Co-Chairperson: Cai-Cheng Lu, Univ. of Illinois at Urbana-Champaign

13:30

Application of the Element Residual Method for Adaptive Refinement in Finite Element Design

*Tom Cwik, *Vahraz Jamnejad, *Cinzia Zuffada, **C H Chan
*California Institute of Technology
**City University of Hong Kong

13:50

Microwave Specific Attenuation by Lossy Raindrops of Spheroidal Shapes: An Exact Formulation

L W Li, T S Yeo, P S Kooi, M S Leong, C L Quek
National University of Singapore

14:10

A Novel Hybrid EFIE-MFIE Iterative (HEMI) Method: Application to Radiation and Scattering Problems

Richard E Hodges, Yahya Rahmat-Samii
University of California, Los Angeles

14:30

Complementary Perfectly Matched Layers for Use as an Absorbing Boundary Condition

Jian-Ming Jin, Shawn Carolan, Weng Cho Chew
University of Illinois at Urbana-Champaign

14:50

Acceleration of the Convergence Rate for the Iterative Solution of EM Scattering from Objects with Open-End Cavities

Cai-Cheng Lu, Weng Cho Chew
University of Illinois at Urbana-Champaign

15:10 Break

15:30

MLFMA for Electromagnetic Scattering with the Impedance Boundary Condition

J M Song, Cai-Cheng Lu, Weng Cho Chew
University of Illinois at Urbana-Champaign

15:50

Detection of a Buried Target Based on Angular Correlation Function Measurement

T K Chan, Y Kuga, A Ishimaru
University of Washington

16:10

Comparison Study of Numerical Simulations of Random Rough Surfaces at Near Grazing Incidence

*C H Chan, **L Tsang
*City University of Hong Kong
**University of Washington

16:30

Research on Solution Stability of Born Iterative Method and Distorted Born Iterative Method in Low-Frequency Inverse Problem

Zaiping Nie, Yerong Zhang
University of Electronic Science and Technology of China

Monday January 6, 1997

LT14 (13:30-15:50)

Session 6P14

Millimeter, Submillimeter and Lightwaves 1

Organizer: T Itoh

Chairperson: T Itoh, UCLA

Co-Chairperson: M C Wu, UCLA

13:30

Progress in High Power, High Frequency Photodetectors

M C Wu, T Itoh, L Y Lin

University of California, Los Angeles

13:50

High Performance Analog Fiber Link Using Semiconductor Waveguide Modulator and Detectors

P K L Yu

University of California, San Diego

14:10

Progress in Semiconductor Optoelectronic Components for Microwave and Millimeter Wave Signal Distribution

J C Brock

TRW Space and Electronics Group

14:30

Recent Progress in Millimeter Wave Antennas

A Basu, T Itoh

University of California, Los Angeles

14:50

Manufacturing Issues of Millimeter-Wave Filters and Diplexers

Y C Shih

Hughes Space & Communications Company

15:10 Break

15:30

Novel Illuminated FET Model and Optically Controlled LU-FET Oscillator

Shigeo Kawasaki

Tokai University

LT13 (13:30-17:10)

Session 6P13

RF and Microwave Circuits 1

Organizers: M S Leong, Le Wei Li

Chairperson: M S Leong, National Univ. of Singapore

Co-Chairperson: Le Wei Li, National Univ. of Singapore

13:30

Calculations of Energy Deposition in a Human Head Caused by MRI-RF Coils

Yoshitsugu Kamimura, Yoshifumi Yamada

Utsunomiya University

13:50

Antennas Integrated with Microwaves Solid-State Devices

*Shyh-Jong Chung, **Kai Chang

*Chiao Tung University, Hsinchu

**Texas A&M University

14:10

Design of Microstrip Rectangular Disk Quadrature 3dB Hybrids

Tadashi Kawai, Yoshihiro Kasuya, Yoshihiro Kokubo, Isao Ohta

Himeji Institute of Technology

14:30

A New Empirical Nonlinear Model for MESFET

B L Ooi, M S Leong, P S Kooi

National University of Singapore

14:50

Calculation of Longitudinal Current Distribution Over Microstrip Circuits Using Reaction Iterative Method

L W Li, M S Leong, P S Kooi, T S Yeo, Y L Qiu

National University of Singapore

15:10 Break

15:30

Thevenin Equivalent Circuit and Scattered Power of a Receiving Wire Antenna

K Hirasawa, A Sato, Y Ojio, T Morioka, S Shibasaki

University of Tsukuba

15:50

Investigation of RF Solution for Software Radio

Ke Gong, Pengyu Shi

Tsinghua University, Beijing

16:10

FDTD Characterization of Spiral Inductors for Silicon-based RF Circuit

Jie Xu, Olli Pekonen

Nokia Research Center

16:30

Accurate Modeling GaAs MESFETs for Wireless Communication Power Amplifier Design

*J Cao, **F J Lin, *P S Kooi, *M S Leong

*National University of Singapore

**Institute of Microelectronics

16:50

Design and Experiment of a 60GHz Imaging Array on Optimized Multilayer Substrates

*Yongxi Qian, *Tatsuo Itoh, **Eikichi Yamashita

*UCLA

**University of Electro-Communications

Monday January 6, 1997

LT12 (13:30-16:50)

Session 6P12

Radar

Organizer: H D Griffiths

Chairperson: H D Griffiths, University College London

Co-Chairperson: Chris Oliver, Defence Research Agency

13:30

Waveform Design for Satellite Borne Meteorological Radars

H D Griffiths, L Vinagre
University College London

13:50

Review - Information from SAR images

Chris Oliver
Defence Research Agency

14:10

Backscattering Models of Aircraft for Millimetre - Wave Radar Imaging

Gaspere Galati, Fausto Marti, Maurizio Naldi
Tor Vergata University of Rome

14:30

Large Bandwidth HF Radar Waveforms with Discontinuous Spectra

S P Kingsley, S D Green
The University of Sheffield

14:50

SAR Interferometric Performance Analysis

Julian Wilson, Stefano Palumbo
Estec, Keplerlaan 1

15:10 Break

15:30

Fractal Models of Scattering from Natural Bodies

*Giorgio Franceschetti, **Maurizio Migliaccio, *Daniele Riccio
*Universit  di Napoli Federico II
**Istituto Universitario Navale

15:50

An Overview of Australian HF Radar Research

S J Anderson
Defence Science and Technology Organisation

16:10

Tropospheric Refraction Errors in Radar Target Coordinates

Ahmed K. Aboul-Seoud, Hanaa M Rashwan, Ahmed E Shaalan
Alexandria University

16:30

Non-Gaussian Properties of HF Sea Clutter

S J Anderson
Defence Science and Technology Organisation

LT11 (13:30-17:10)

Session 6P11

Inverse Scattering & Polarimetry

Organizer: Ross Murch

Chairperson: Ross Murch, HK Univ. of Science & Technology

Co-Chairperson: Hsin-Chia Lu, National Taiwan University

13:30

Microwave Diversity Imaging Using Six-Port Reflectometer in a Compact Range Arrangement

Hsin-Chia Lu, Tah-Hsiung Chu
National Taiwan University

13:50

Polarimetric Borehole Radar

Moyoyuki Sato, Takashi Miwa, Hiroaki Niitsuma,
Katsuto Nakatsuka
Tohoku University

14:10

Polarimetric and Time Series Features and Their Application to Classification Algorithms for Detection of Surface Roughness, Moisture and Ice Layers

Rolf Finkel, Andreas Schreck, Gerd Wanielik
Research Center Ulm

14:30

Three-Dimensional Electromagnetic Inverse Scattering by Local Shape Function Method with CGFFT

Jiun-Hwa Lin, Weng Cho Chew
University of Illinois at Urbana-Champaign

14:50

A General Formula of UIM for the EM Inverse Scattering Problem

Weiyan Wang, Shourong Zhang
Academia Sinica

15:10 Break

15:30

Two-Dimensional Microwave-Imaging Approaches in the Spatial Domain Using Probabilistic Concepts

*S Caorsi, **G L Gragnani, **M Pastorino
*University of Pavia
**University of Genoa

15:50

Imaging of Cross-sectional Absorption Distribution in Diffuse Medium

Koichi Shimizu, Aki Awata, Katsuyuki Yamamoto
Hokkaido University

16:10

Diffraction and Phase Method of the Troposphere Radiorefractive Measurement in UHF with the Help of a Satellite

D D Darizhapov, E M Khomyak, E Ch Daribazon
Buryat Institute of Natural Sciences

16:30

The Ecological Monitoring in Siberia and Baikal Lake Region

D D Darizhapov, B Ch Dorzhiev, P A Shirokov
Buryat Institute of Natural Sciences

16:50

Radiorefractive in the Far-East Region and Its Influence VHF Propagation

D D Darizhapov, E V Batueva
Buryat Institute of Natural Sciences

Monday January 6, 1997

LT10 (13:30-16:50)

Session 6P10

Wave Propagation in Planar Structures

Organizer: Robert Weigel

Chairperson: Robert Weigel, University of Linz

Co-Chairperson: D Jäger, Gerhard-Mercator-Universität
Duisburg

13:30

Wave Propagation on Nonlinear Transmission Lines

*D Jäger, **V K Mezentsev, **S L Musher, **I V Ryzhenkova,

**S K Turitsyn, *R Hölsewede

*Gerhard-Mercator-Universität Duisburg

**Institute of Automation and Electrometry, Universitetskii pr.1

13:50

Scattering Parameters of Planar Discontinuities on Partially Doped Silicon Substrate

R Vahldieck, S Chen

University of Victoria

14:10

Calculation of the Coupling of Dielectric Resonators to Microstrip Circuits with a FEM/BEM-Hybrid Technique

Thomas F Eibert, Volkert Hansen

Bergische Universität / Gesamthochschule

14:30

A Novel Subgridding Scheme for the Distributed TLM Modeling of Thin Layers

B Isele, T Mangold, R Weigel, P Russer

Technische Universität München

14:50

A Contribution to the Simulation of Periodic Wave Guide Structures

Ulf Möller, Marc Walter, Adalbert Beyer

Gerhard-Mercator-Universität-GH-Duisburg

15:10 Break

15:30

Field Theory Analysis and Experimental Characterization of Wave Propagation in Microacoustic Structures

*Robert Weigel, *Andreas Holm, *Hans Meier, *Ulrike Resler,

*Ralph Schneider, *Beate Walliser, **Werner Ruile

*Technische Universität München

**Siemens AG München

15:50

Accurate Analysis of Ridged Circular Waveguide and its Transition to Circular Waveguide by an Integral-Equation-Mode-Matching-Technique

Severine Catreux, Smain Amari, Rüdiger Vahldieck

University of Victoria

16:10

Optimum Correlation Functions for GPR Data Processing by Spectral Domain Methods

Juergen Detlefsen, Dirk Felbach

Technische Universität München

16:30

The Method of Lines for the Simulation of Elevated Coplanar Waveguides

Dennis Kremer, Reinhold Pregla

FernUniversität

LT9 (13:30-16:50)

Session 6P9

Optical Waveguide Structures

Organizer: Reinhold Pregla

Chairperson: Reinhold Pregla, FernUniversität

Co-Chairperson: Dennis Kremer, FernUniversität

13:30

*High-Order-Accurate Finite Difference Equations for Photonics Modeling**

G Ronald Hadley

Sandia National Laboratories

14:10

Computer-Aided Design of Photonic Waveguide Devices

C Glingener, J-P Elbers, E Voges

Universität Dortmund

14:30

Mode Expansion Methods for Field Calculations in Optical Waveguides

Aasmund Sudbo

University of Oslo

14:50

Layered Media for Modal and Polarization Control in Optical Waveguides

R J Deri, S P DiJaili, F G Patterson, M A Emanuel

Lawrence Livermore National Laboratory

15:10 Break

15:30

Design and Analysis of Singly and Doubly Periodic Waveguides Using Time Domain Methods

*R Zengerle, **S Leonhard

* Deutsche Telekom AG, Technologie zentrum

**University of Kaiserslautern

15:50

A Very Stable and Accurate Algorithm for the Analysis of Periodic Structures with a Finite Number of Periods

S Helfert, R Pregla

FernUniversität

16:10

Modeling of VCSELs

Barry Koch, Philip Cheung, James Leger, Anand Gopinath

University of Minnesota

16:30

Optical Properties of A Cantor Corrugated Waveguide

M Bertolotti, P Masciulli, P Ranieri, C Sibilia

Universita' di Roma "La Sapienza"

* double time-slot (40 minutes)

Monday January 6, 1997

LT8 (12:50-17:30)

Session 6P8

Semiconductor Lasers & Photonic Devices

Organizers: Weiping Huang, University of Waterloo

E Herbert Li

Chairperson: K Yokoyama, NTT Opto-electronic Laboratories

Co-Chairperson: E Herbert Li, University of Hong Kong

12:50

*High Temperature Operation of Long-Wavelength Strained-Layer Quantum-Well Semiconductor Laser Diodes**

Kiyoyuki Yokoyama

NTT Opto-electronics Laboratories

13:30

*Strained Quantum Well Lasers with Non-(001) Crystal Orientations**

Tsukuru Ohtoshi, Atsuko Niwa, Takao Kuroda

Hitachi Ltd

14:10

*Numerical Modeling of the Optical Field in Vertical-Cavity Surface-Emitting Lasers**

G Ronald Hadley, Kent D Choquette

Sandia National Laboratories

14:50

Fast and Accurate Analysis of Coated and Angled Facets Considering Two-Dimensional Beam Profiles

*T M Benson, **P C Kendall, *M Reed, *P Sewell

*University of Nottingham, **University of Sheffield

15:10 Break

15:30

Modeling and Measurement of Some Functional Semiconductor Laser Devices

G-H Duan

Ecole Nationale Supérieure des Télécommunications

15:50

Gain Coupled DFB Semiconductor Laser Monolithically Integrated with Electroabsorption Modulator

Yi Luo, Chang-Zheng Sun, Guo-Peng Wen

Tsinghua University, Beijing

16:10

Adiabatic Frequency Chirp Analysis in Semiconductor DFB Lasers Monolithically Integrated with Mach-Zehnder Modulators

*X Li, *W P Huang, **D M Adams, **C Rolland, **T Makino

*University of Waterloo, **Nortel Technology

16:30

Intermixed Quantum Well Laser

Michael C Y Chan, E Herbert Li

The University of Hong Kong

16:50

Modelling of Avalanche Photodiodes

M Jamal Deen

Simon Fraser University

17:10

Large and Small Signal Equivalent Circuit of QW Lasers

*P R Vaya, **H A Tafti

*Indian Institute of Technology, **Anna University

* double time-slot (40 minutes)

LT7 (13:30-17:10)

Session 6P7

Electromagnetics - Efficient in Cancer Treatment

Special Session to Honour the Pioneering Work of

Chinese Physicians on

Application of Electromagnetics in Medicine

Organizers: Hiroshi Kikuchi, Swen Alfás

Chairperson: Hiroshi Kikuchi, Nihon University

Co-Chairperson: Swen Alfás, EK, Innovation Dept., Ballerup

13:30

*Case Reports Showing 80% Efficiency of Defeating Various Cancer Tumours by BET in China**

Y-L Xin, F R Zhao

China-Japan Friendship Hospital

14:10

Effectiveness of Bio-Electric Treatment on Hepatic Hemangioma and Carcinoma of Gall-bladder

C K Gu, X Y Chen

Affiliated Hospital of Sichuan Academy of Medical Science

14:30

Effects of Applied Electric Fields on Cancer Tumours

*H Kikuchi, **S Alfás, ***S Kawamata, ****Y Nagai

*Nihon University

**EK, Innovation Dept., Ballerup

***Utsunomiya University

****Shonan Institute of Technology

14:50

Effect of Electric Field Penetration into a Human Body

*Y Nagai, **S Kawamata, ***H Kikuchi

*Shonan Institute of Technology

**Utsunomiya University

***Nihon University

15:10 Break

15:30

Effect of Electric Field Application on Water in Living Things

Y Nagai

Shonan Institute of Technology

15:50

Fundamentals of Electro-Biology in Medical Applications

Swen Alfás

EK, Innovation Dept., Ballerup

16:10

Panel Discussion on Future Directions

Moderator : Swen Alfás

* double time-slot (40 minutes)